

**Amendments to the Claims:**

This listing of claims will replace all prior version, and listing, of claims in the application:

**Listing of the Claims:**

Claims 1-10 (Canceled).

Claim 11 (Currently Amended): A filter circuit comprising:

a first circuit, connected to a first terminal of a capacitor, comprising:

a first differential circuit connected between a first circuit input terminal and a first circuit output terminal, said first differential circuit comprising a plurality of fundamental circuits connected in series between a first power supply and a second power supply to form  $n$  vertical stages, where  $n$  is an integer greater than 1, each vertical stage formed by a first transistor and four parallel diode-connected transistors ~~connected in parallel with each other~~, said first transistor of said first vertical stage connected in series with said first transistors of the  $[[2-n]]$  2<sup>nd</sup> to  $n$  vertical stages, said four parallel diode-connected transistors of said first vertical stage connected in series with said diode-connected transistors of the  $[[2-n]]$  2<sup>nd</sup> to  $n$  vertical stages, an emitter electrode of said first transistor in the  $n$ th vertical stage and each of said emitter electrodes of the four parallel diode-connected transistors in the  $n$ th vertical stage are connected to said second power supply by a first current source,

a second differential circuit comprising a plurality of fundamental circuits connected in series between said first power supply and said second power supply to form  $n$

vertical stages, each vertical stage formed by a second transistor and four parallel ~~[[diode-connected]]~~ transistors ~~connected in parallel with each other~~, said second transistor of said first vertical stage connected in series with said second transistors of the ~~[[2-n]]~~ 2<sup>nd</sup> to n vertical stages, said four parallel ~~[[diode-connected]]~~ transistors of said first vertical stage connected in series with said parallel ~~[[diode-connected]]~~ transistors of the ~~[[2-n]]~~ 2<sup>nd</sup> to n vertical stages, an emitter electrode of said second transistor in the *n*th vertical stage and each of said emitter electrodes of the four parallel ~~[[diode-connected]]~~ transistors in the *n*th vertical stage connected to said second power supply by a second current source,

a first connection node connecting base electrodes and collector electrodes of said four parallel diode-connected transistors of ~~[[each]]~~ said first vertical stage in said first differential circuit to said base electrode~~[[s]]~~ and said collector electrode~~[[s]]~~ of said second transistor~~[[s]]~~ of ~~[[each]]~~ said first vertical stage in said second differential circuit, the first connection node connected to said first circuit output terminal and to said first power supply by a third current source, and

a second circuit having ~~[[an]]~~ a symmetrically identical configuration as said first circuit with respect to a second terminal of said capacitor and including a second circuit output terminal, and a second circuit input terminal, ~~said second circuit~~, said second circuit connected to ~~[[a]]~~ said second terminal of said capacitor, said second circuit connected to a second terminal of said capacitor between said second circuit input terminal and said second circuit output terminal,

wherein said filter circuit serves as a first-order low-

pass filter.

12. (Currently Amended) A filter circuit comprising:

a first circuit, connected to a first terminal of a capacitor, comprising:

a first differential circuit comprising a plurality of fundamental circuits connected in series between a first circuit input terminal and a ~~[[first]]~~ circuit output terminal, each fundamental circuit formed by a first transistor and four parallel diode-connected transistors ~~connected in parallel with each other~~, and

a second differential circuit comprising a plurality of fundamental circuits connected in parallel with said plurality of fundamental circuits of said first differential circuit and between said first circuit input terminal, said ~~[[first]]~~ circuit output terminal, and said first terminal of said capacitor, each fundamental circuit formed by a second transistor and four parallel ~~[[diode-connected]]~~ transistors ~~connected in parallel with each other~~; and

a second circuit having ~~[[an]]~~ a symmetrically identical configuration as said first circuit with respect to a second terminal of said capacitor and including a second circuit output terminal, and a second circuit input terminal, said second circuit connected to the second terminal of said capacitor,

wherein said filter circuit serves as a first-order low-pass filter.

Claim 13 (Currently Amended): A filter circuit comprising:

a first circuit, connected to a first terminal of a

capacitor, comprising:

a first differential circuit comprising a plurality of fundamental circuits connected in ~~[[parallel]]~~ series between a first circuit input terminal and a first circuit output terminal, each fundamental circuit formed by a first transistor and four parallel diode-connected transistors ~~connected in parallel with each other~~, and

a second differential circuit comprising a plurality of fundamental circuits connected in parallel with said plurality of fundamental circuits of said first differential circuit and between said first circuit input terminal, said first circuit output terminal, and said first terminal of said capacitor, each fundamental circuit formed by a second transistor and four parallel ~~[[diode-connected]]~~ transistors ~~connected in parallel with each other~~; and

a second circuit having ~~[[an]]~~ a symmetrically identical configuration as said first circuit with respect to a second terminal of said capacitor and including a second circuit output terminal, and a second circuit input terminal, said second circuit connected to a second terminal of said capacitor,

wherein said filter circuit serves as a first-order low-pass filter.

Claim 14 (Currently Amended): A filter circuit comprising:

a first circuit comprising:

a first differential circuit formed by a first transistor having a collector electrode connected to a first power supply, and four parallel diode-connected transistors ~~connected in parallel with each other~~ and each having an emitter electrode connected to an emitter electrode of said

first transistor, ~~[[an]]~~ said emitter electrode of said first transistor and each of said emitter electrodes of the four parallel diode-connected transistors connected to a second power supply by a first current source, and

a second differential circuit formed by a second transistor having a collector electrode connected to said first power supply, and four parallel ~~[[diode-connected]]~~ transistors ~~connected in parallel with each other~~ and each having an emitter electrode connected to an emitter electrode of said second transistor, ~~[[an]]~~ said emitter electrode of said second transistor and each of said emitter electrodes of the four parallel ~~[[diode-connected]]~~ transistors connected to said second power supply by a second current source,

a base electrode of said first transistor in said first differential circuit and base electrodes of said four parallel ~~[[diode-connected]]~~ transistors in said second differential circuit connected to a direct-current power supply, and

a first connection node connecting base electrodes and collector electrodes of said four parallel diode-connected transistors of said first differential circuit to said base electrode and said collector electrode of said second transistor in said second differential circuit, the first connection node connected to a first circuit output terminal and to a first terminal of a first capacitor, a second terminal of said first capacitor connected to a first circuit input terminal; and

a second circuit having ~~[[an]]~~ a symmetrically identical configuration as said first circuit with respect to a second terminal of a second capacitor and including a second connection node connected to a second circuit output terminal and to a first terminal of ~~[[a]]~~ said second capacitor, ~~[[a]]~~

said second terminal of said second capacitor connected to a second circuit input terminal, said second circuit connected to said direct-current power supply,

wherein said filter circuit serves as a first-order high-pass filter.

Claim 15 (Currently Amended): A filter circuit comprising:

a first circuit comprising:

a first differential circuit formed by a first transistor having a collector electrode connected to a first power supply, and four parallel diode-connected transistors ~~connected in parallel with each other~~ and each having an emitter electrode connected to an emitter electrode of said first transistor, an emitter electrode of said first transistor and each of said emitter electrodes of the four parallel diode-connected transistors connected to a second power supply by a first current source, and

a second differential circuit comprising a second transistor having a collector electrode connected to said first power supply, and four parallel ~~[[diode-connected]]~~ transistors ~~connected in parallel with each other~~ and each having an emitter electrode connected to an emitter electrode of said second transistor, ~~[[an]]~~ said emitter electrode of said second transistor and each of said emitter electrodes of the four parallel ~~[[diode-connected]]~~ transistors connected to said second power supply by a second current source, a base electrode of said first transistor in said first differential circuit and base electrodes of said four parallel ~~[[diode-connected]]~~ transistors in said second differential circuit connected to a first circuit input terminal ~~[[direct-current power supply]]~~, and

a first connection node connecting base electrodes and collector electrodes of said four parallel diode-connected transistors of said first differential circuit to said base electrode and said collector electrode of said second transistor in said second differential circuit, the first connection node connected to a second circuit output terminal and to a first terminal of a first capacitor, a second terminal of said first capacitor connected to a second circuit input terminal; and

a second circuit having [[an]] a symmetrically identical configuration as said first circuit with respect to a first terminal of a second capacitor and including a second connection node connected to a first circuit output terminal and to [[a]] said first terminal of [[a]] said second capacitor, a second terminal of said second capacitor connected to [[a]] said first circuit input terminal,

wherein said filter circuit serves as a first-order all-pass filter.